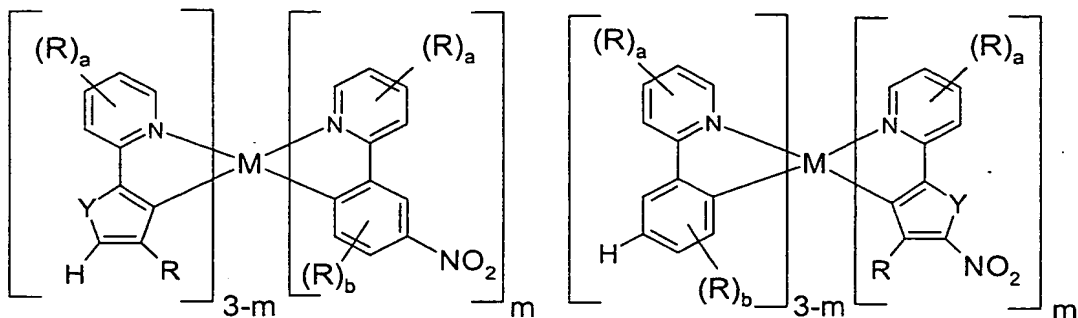
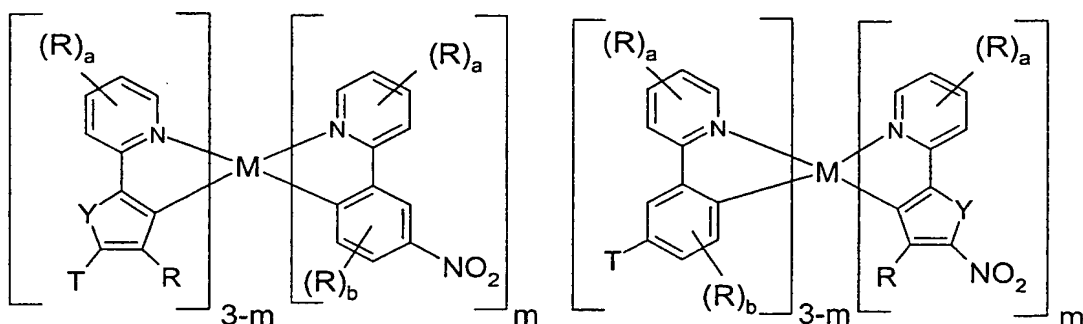


1. A compound of the formula (1a), (2a), (3a), (4a), (5a), (6a), (7a) and (8a):



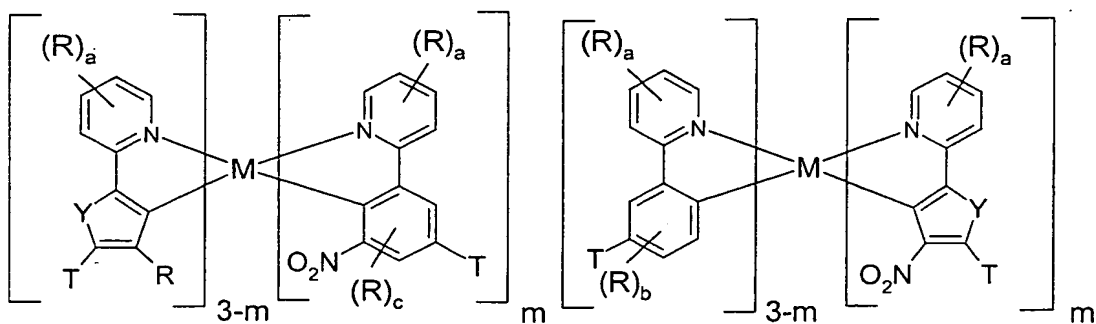
Compounds (1a)

Compounds (2a)



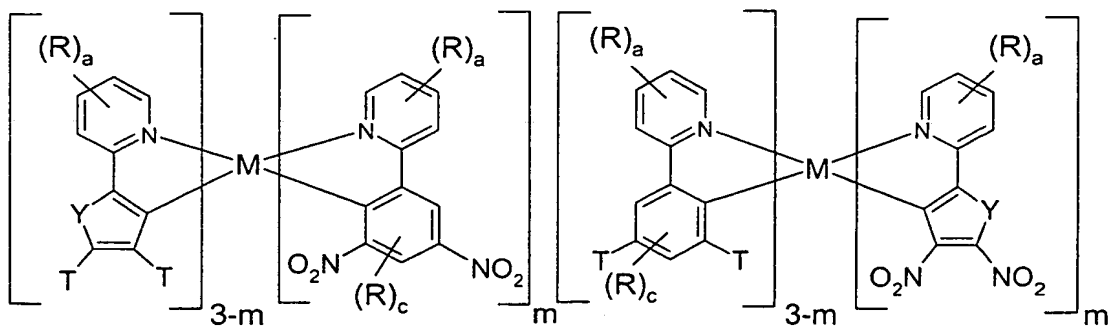
Compounds (3a)

Compounds (4a)



Compounds (5a)

Compounds (6a)



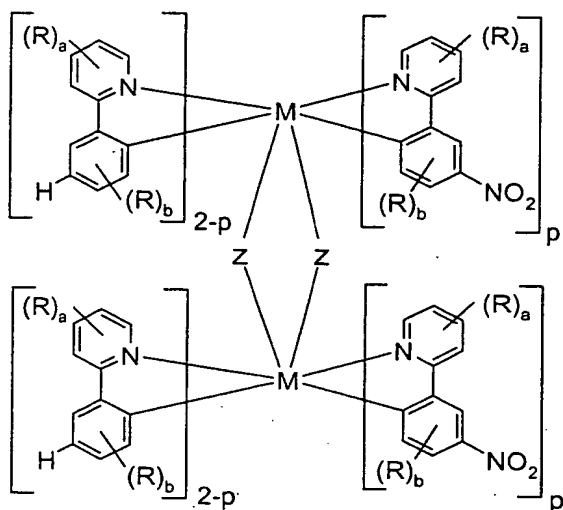
Compounds (7a)

Compounds (8a)

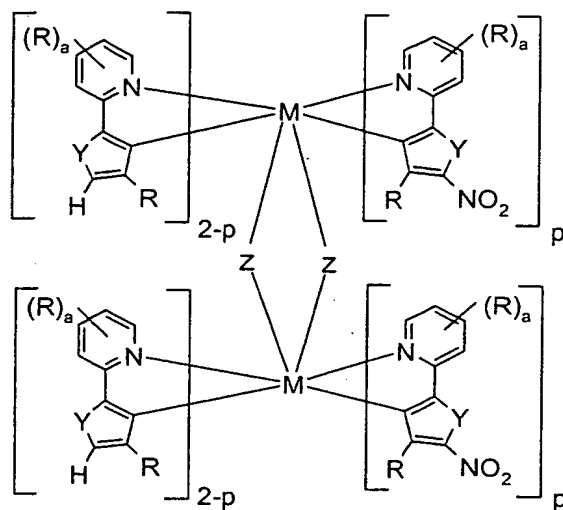
where the symbols and indices are each defined as follows:

- M is Rh, Ir ;
- Y is O, S, Se, NR<sup>1</sup>;
- R is the same or different at each instance and is H, F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>1</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- T is the same or different at each instance and is F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>1</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- R<sup>1</sup> is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;
- a is 0, 1, 2, 3 or 4;
- b is 0, 1, 2 or 3;
- m is 1 or 2;
- n is 1, 2 or 3.

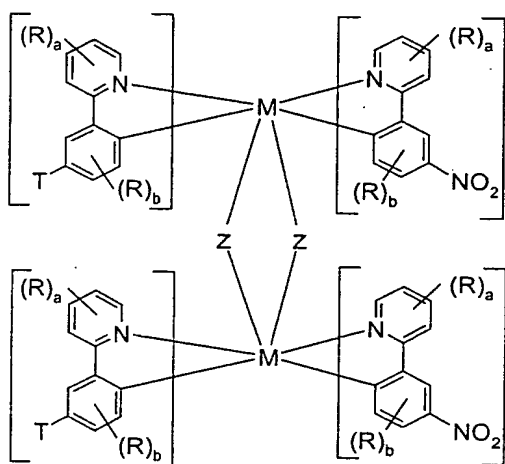
2. A compound of the formula (9), (10), (11), (12), (13), (14), (15) and (16):



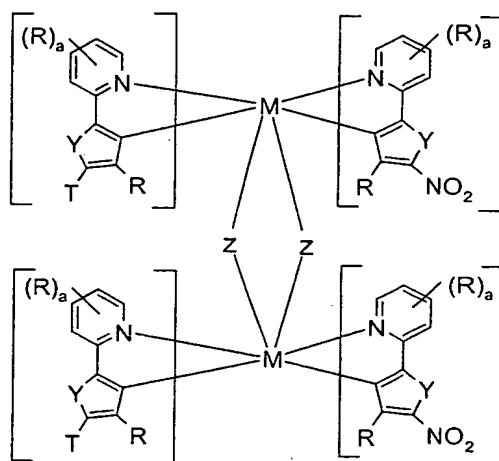
Compounds (9)



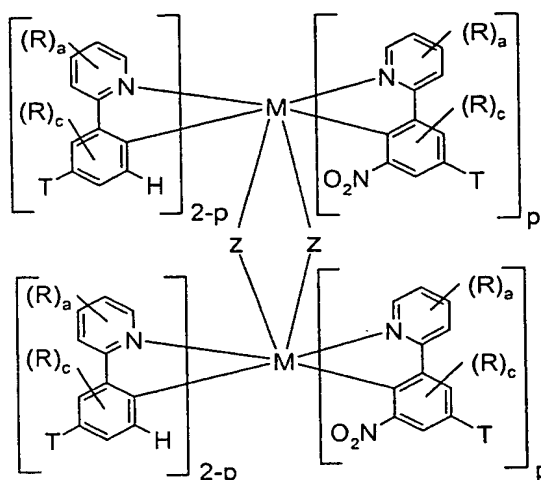
Compounds (10)



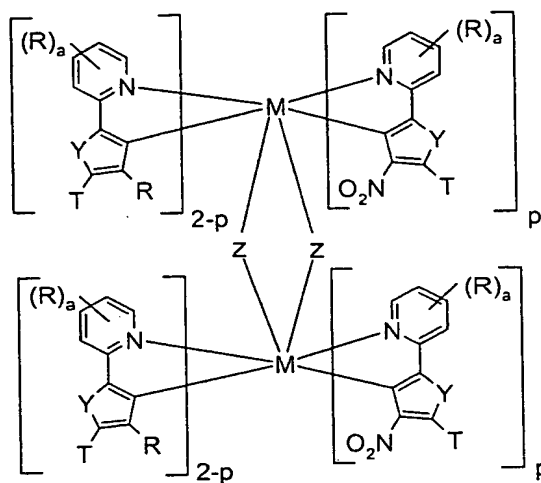
Compounds (11)



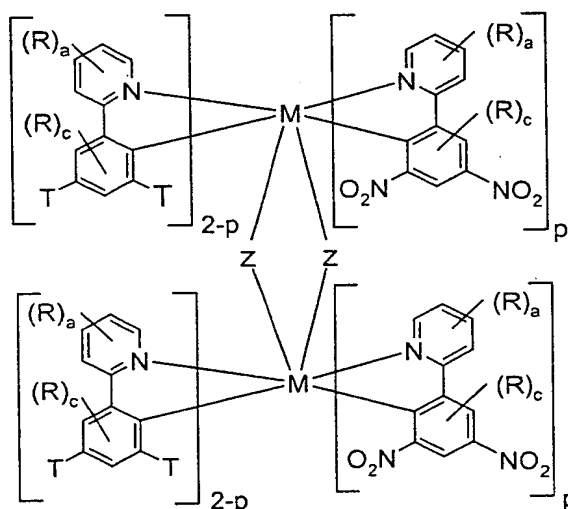
Compounds (12)



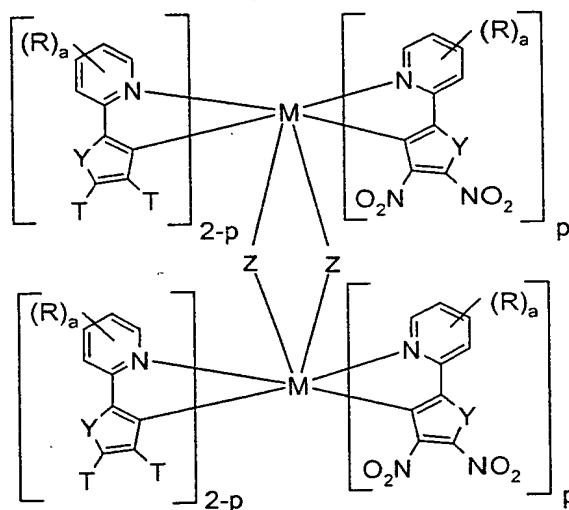
Compounds (13)



Compounds (14)



Compounds (15)



Compounds (16)

where the symbols and indices are each defined as follows:

- M is Rh, Ir ;  
 Y is O, S, Se, NR<sup>1</sup>;  
 Z is F, Cl, Br, I, O-R<sup>2</sup>, S-R<sup>1</sup>, N(R<sup>1</sup>)<sub>2</sub>;  
 R is the same or different at each instance and is H, F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>2</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the

two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;

T is the same or different at each instance and is F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>2</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;

R<sup>1</sup> is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;

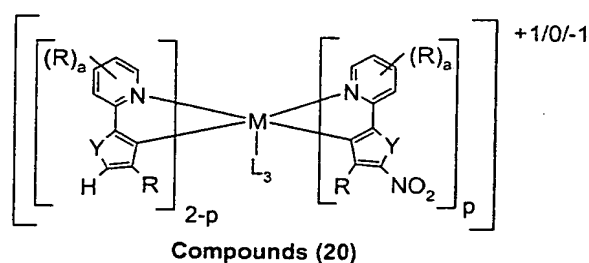
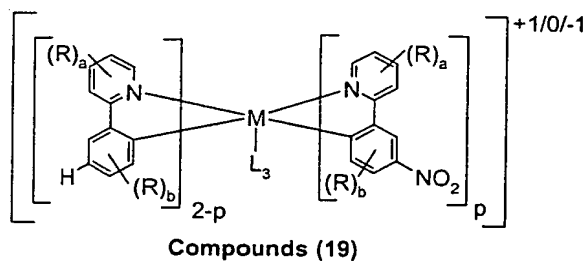
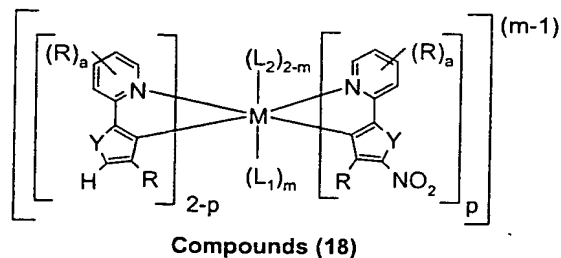
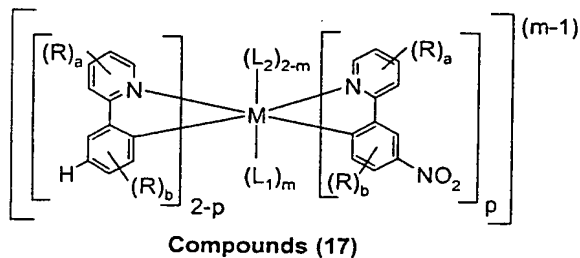
a is 0, 1, 2, 3 or 4;

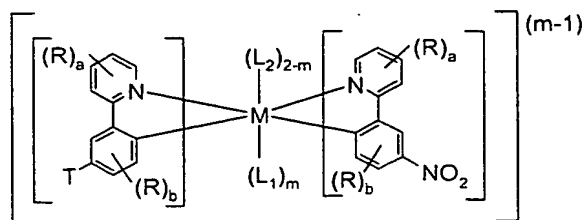
b is 0, 1, 2 or 3;

c is 0, 1 or 2;

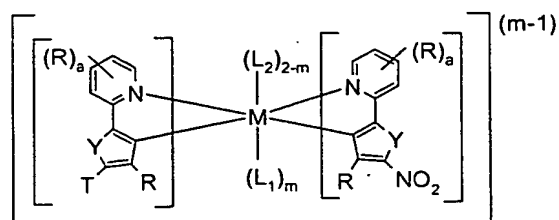
p is 1 or 2.

3. A compound of the formula (17), (18), (19), (20), (21), (22), (23), (24), (25), (26), (27), (28), (29), (30), (31) and (32):

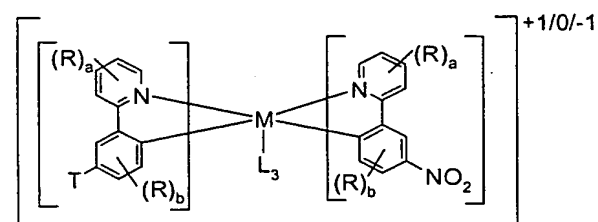




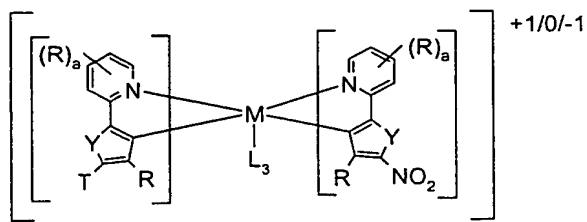
### Compounds (21)



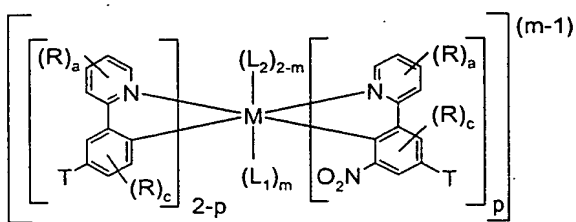
### Compounds (22)



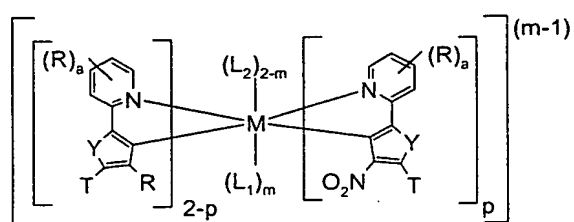
### Compounds (23)



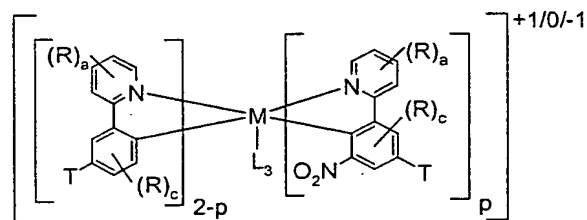
### Compounds (24)



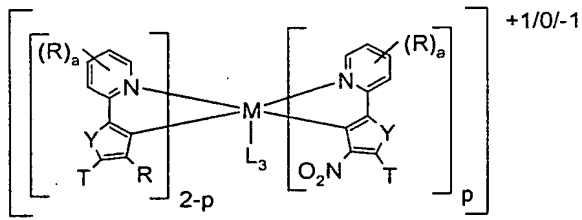
### Compounds (25)



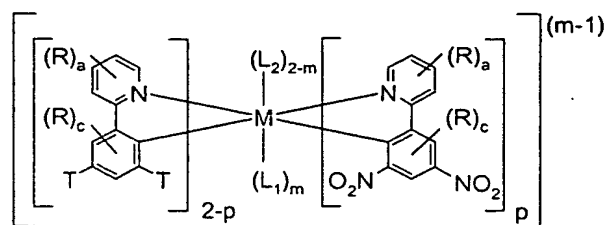
### Compounds (26)



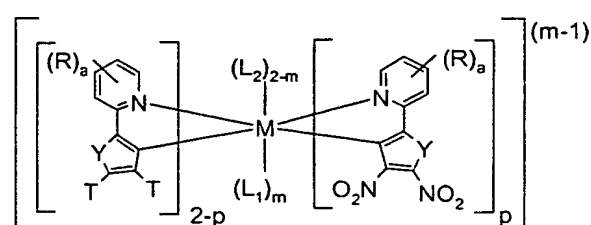
### Compounds (27)



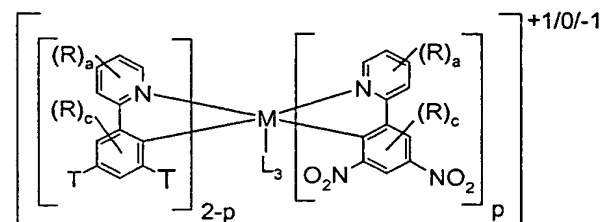
### Compounds (28)



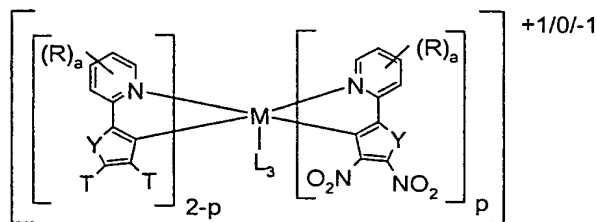
Compounds (29)



Compounds (30)



Compounds (31)



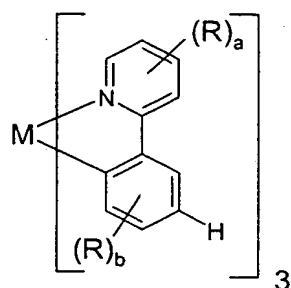
Compounds (32)

where the symbols and indices are each defined as follows:

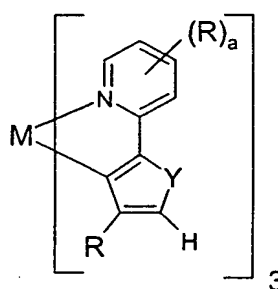
- M is Rh, Ir ;
- Y is O, S, Se,  $NR^1$ ;
- R is the same or different at each instance and is H, F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent  $CH_2$  groups may be replaced by  $-O-$ ,  $-S-$ ,  $-NR^1-$  or  $-CONR^2-$  and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- T is the same or different at each instance and is F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent  $CH_2$  groups may be replaced by  $-O-$ ,  $-SiR^1_2-$ ,  $-S-$ ,  $-NR^1-$  or  $-CONR^2-$  and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- $R^1$  is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;
- $L_1$  is an uncharged, monodentate ligand;
- $L_2$  is a monoanionic, monodentate ligand;

$L_3$  is an uncharged or mono- or dianionic bidentate ligand;  
a is 0, 1, 2, 3 or 4;  
b is 0, 1, 2 or 3;  
m is 0, 1 or 2;  
p is 1 or 2.

4. A process for preparing the compounds defined in claim 1 to 3, by reacting the compounds (33), (34), (35), (36), (37), (38), (39), (40), (41), (42), (43), (44), (45), (46), (47), (48), (49), (50), (51), (52), (53), (54), (55), (56), (57), (58), (59), (60), (61), (62), (63) and (64):

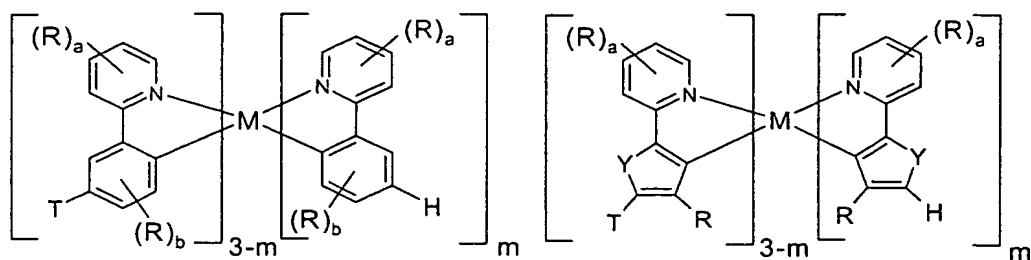


**Compounds (33)**



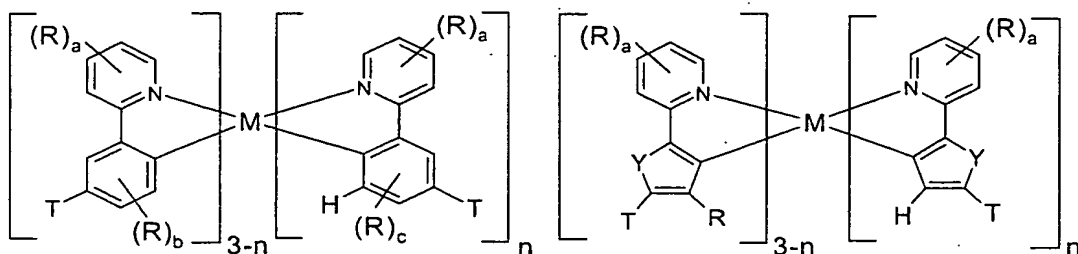
**Compounds (34)**





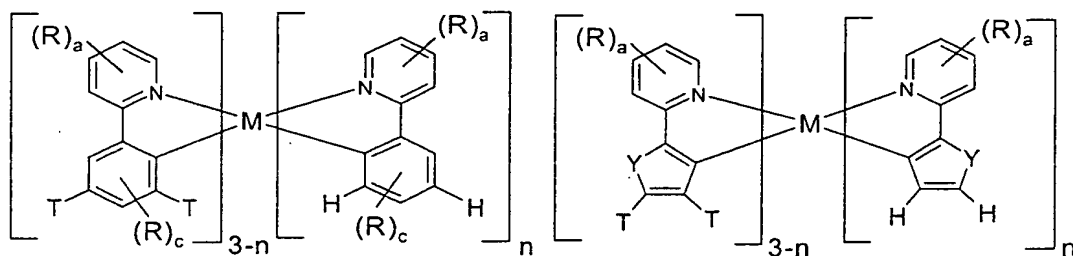
Compounds (35)

Compounds (36)



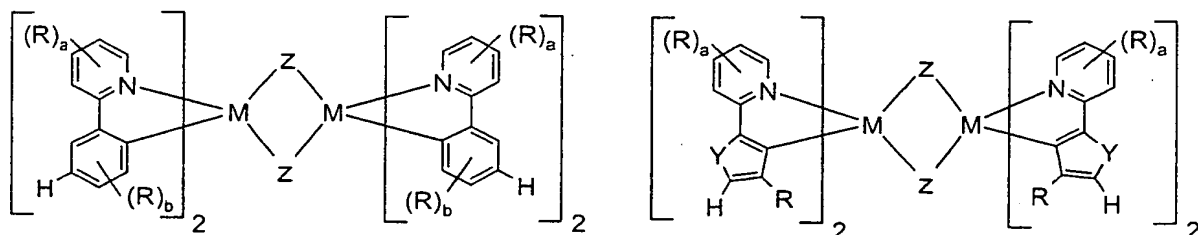
Compounds (37)

Compounds (38)



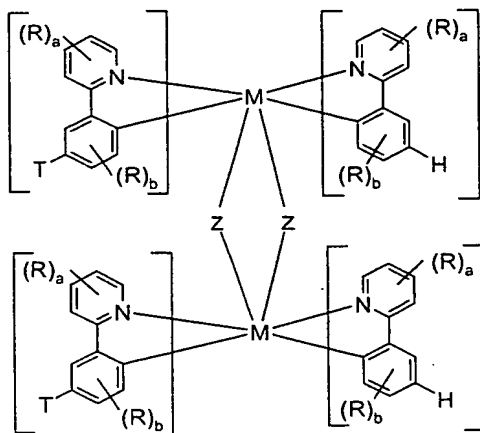
Compounds (39)

Compounds (40)

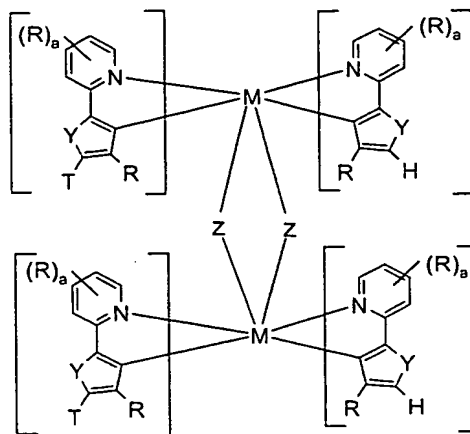


Compounds (41)

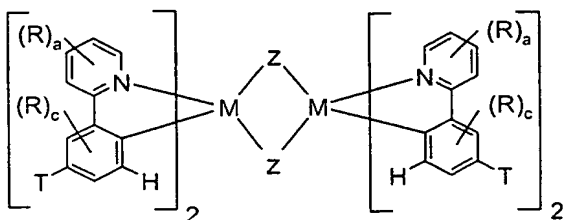
Compounds (42)



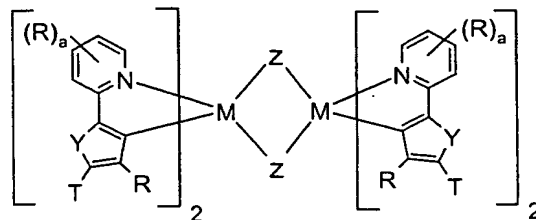
Compounds (43)



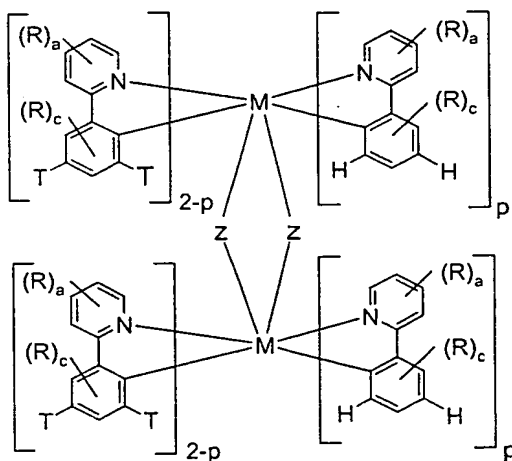
Compounds (44)



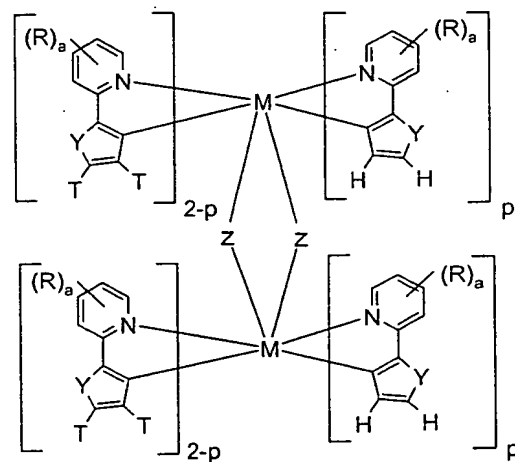
Compounds (45)



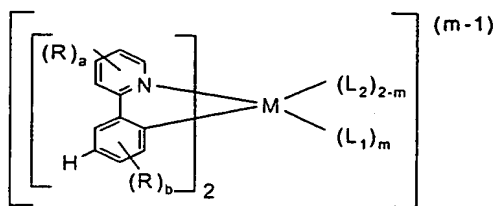
Compounds (46)



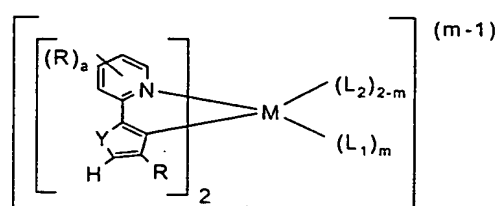
Compounds (47)



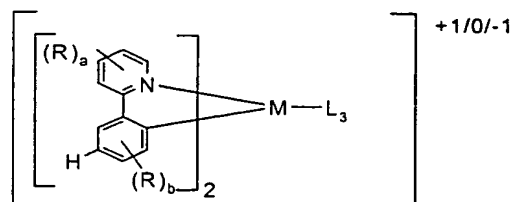
Compounds (48)



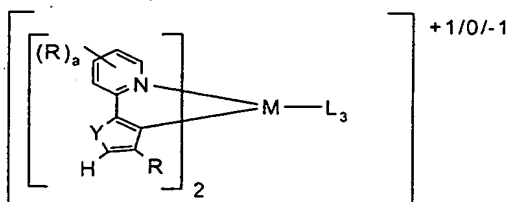
Compounds (49)



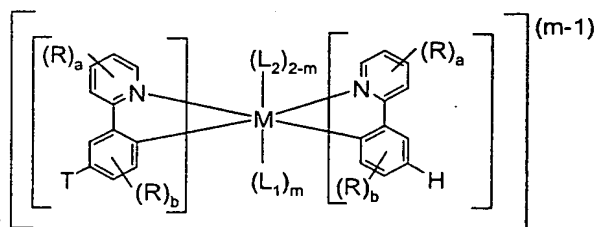
Compounds (50)



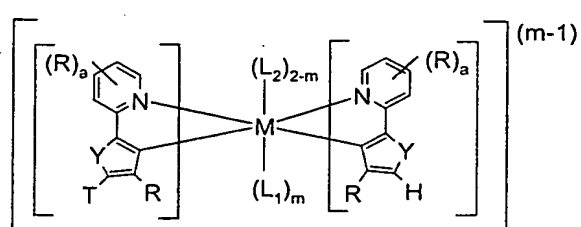
Compounds (51)



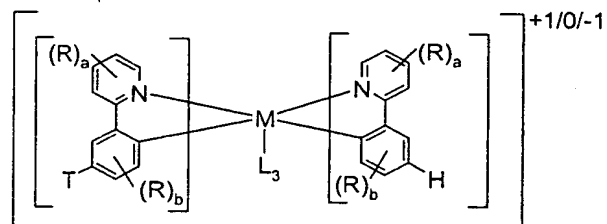
Compounds (52)



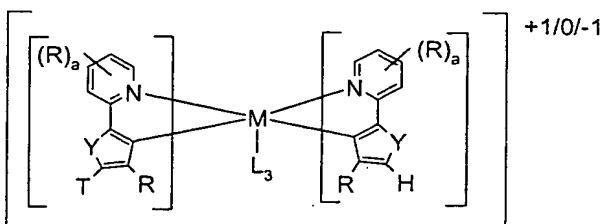
Compounds (53)



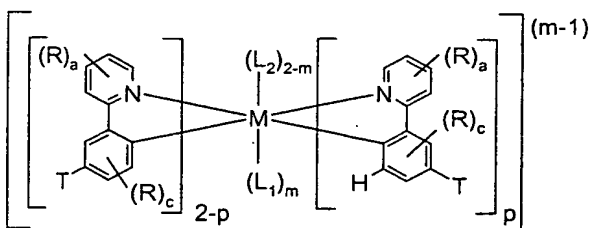
Compounds (54)



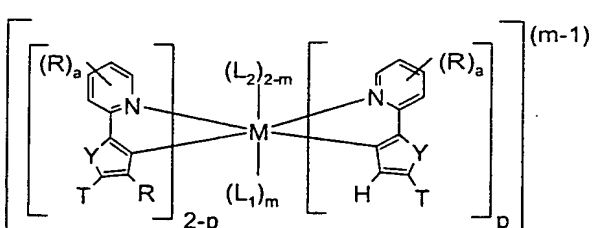
Compounds (55)



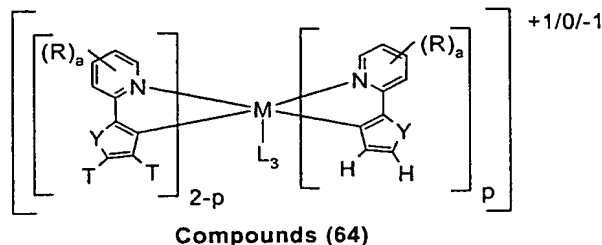
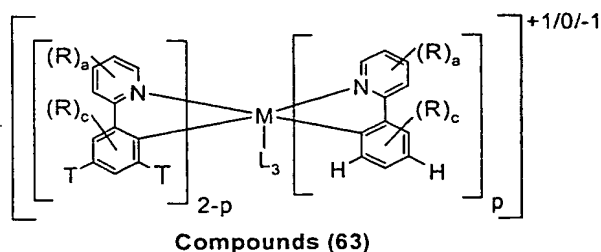
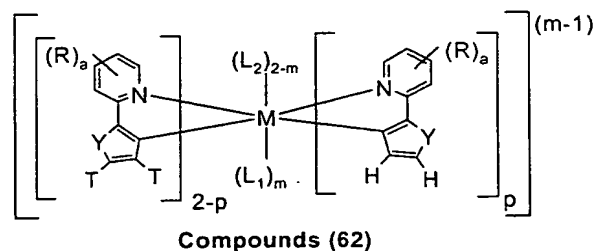
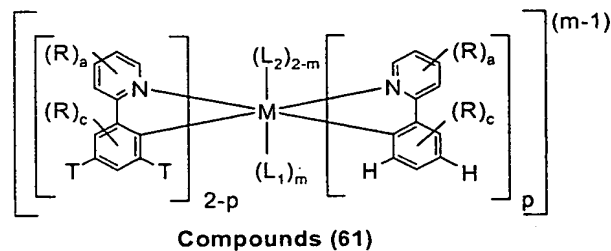
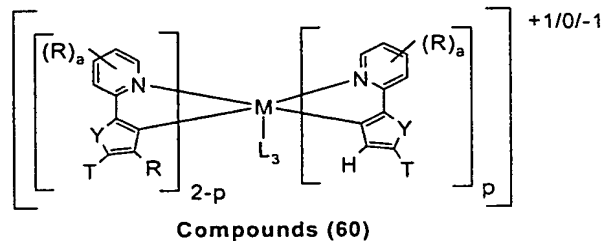
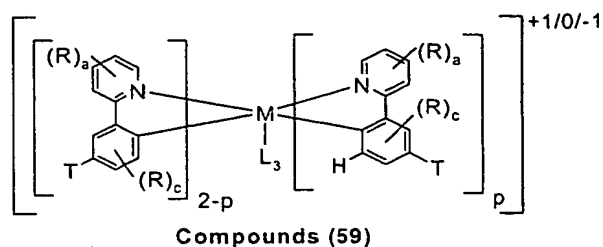
Compounds (56)



Compounds (57)



Compounds (58)



where M and the radicals and indices Y, Z, R, T, R<sup>1</sup>, L<sub>1</sub>, L<sub>2</sub>, L<sub>3</sub>, a, b, m, n and p are each as defined in claim 1 to 3 with nitrating agents.

5. The process as claimed in claim 4, characterized in that the nitrating agent used is nitric acid, optionally in combination with a further acid, for example sulfuric acid or phosphoric acid.

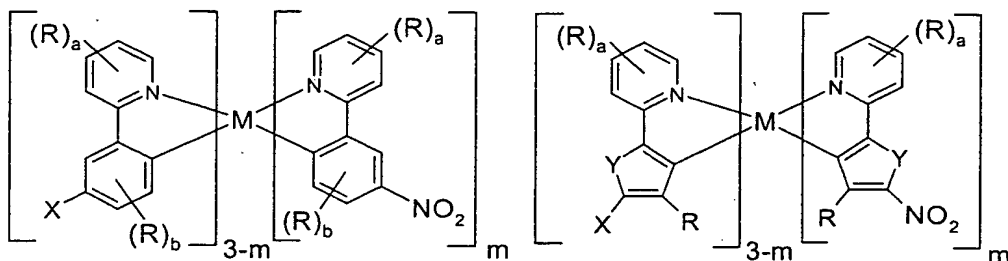
6. The process as claimed in claim 4, characterized in that the nitrating agent used is dinitrogen tetroxide or dinitrogen pentoxide.

7. The process as claimed in claim 4, characterized in that the nitrating agent used is a nitronium salt of the NO<sub>2</sub>A type where A is a suitable inert anion such as BF<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup> or CF<sub>3</sub>SO<sub>3</sub><sup>-</sup>.

8. The process as claimed in claim 4, characterized in that the nitrating agent used is an alkali metal or alkaline earth metal nitrate such as lithium nitrate, sodium nitrate, potassium nitrate or magnesium nitrate, or a transition metal nitrate such as iron(II) nitrate, iron(III) nitrate, cobalt(II) nitrate, cobalt(III) nitrate, nickel(II) nitrate or copper(II) nitrate, optionally in the presence of an acid such as sulfuric acid, phosphoric acid, acetic acid, propionic acid or trifluoroacetic acid, and/or of a carboxylic anhydride such as acetic anhydride or propionic anhydride, or mixtures thereof.

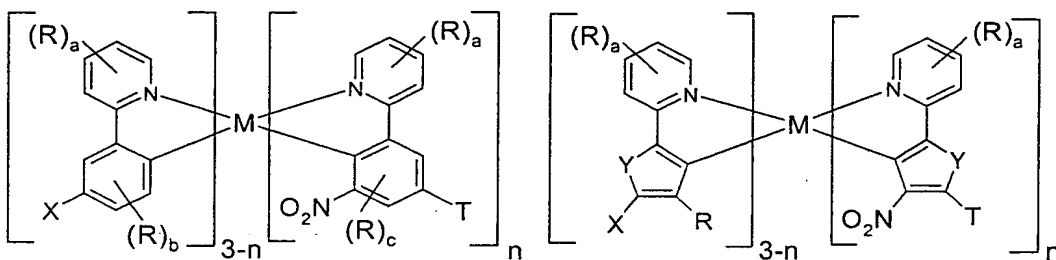
9. A compound as claimed in claim 1, 2 or 3, characterized in that its purity (determined by means of  $^1\text{H}$  NMR or HPLC) is more than 99%.

10. A conjugated, semiconjugated or nonconjugated polymer containing one or more compounds of the formula (3'), (4'), (5'), (6'), (7') and/or (8')



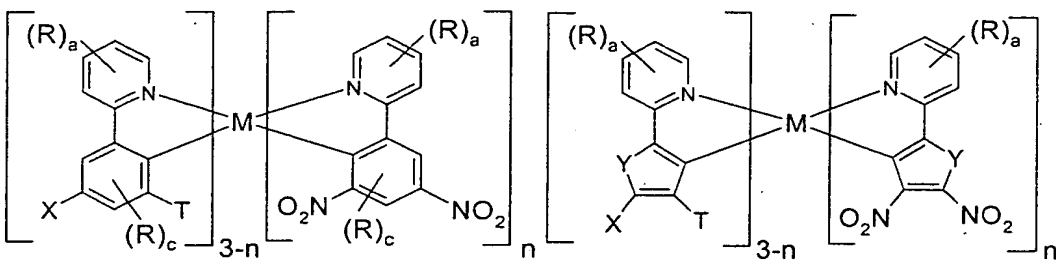
Compounds (3')

Compounds (4')



Compounds (5')

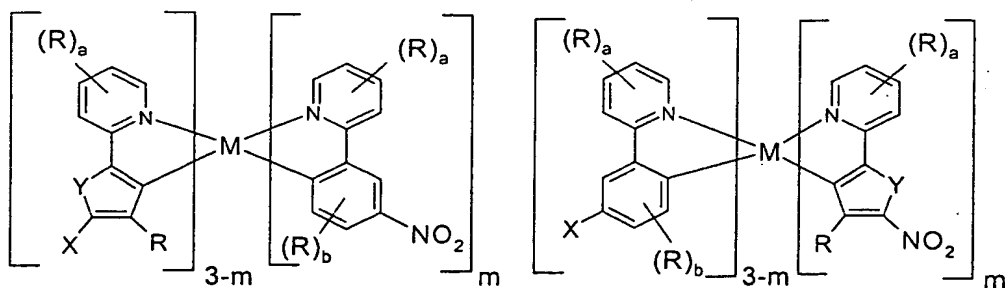
Compounds (6')



Compounds (7')

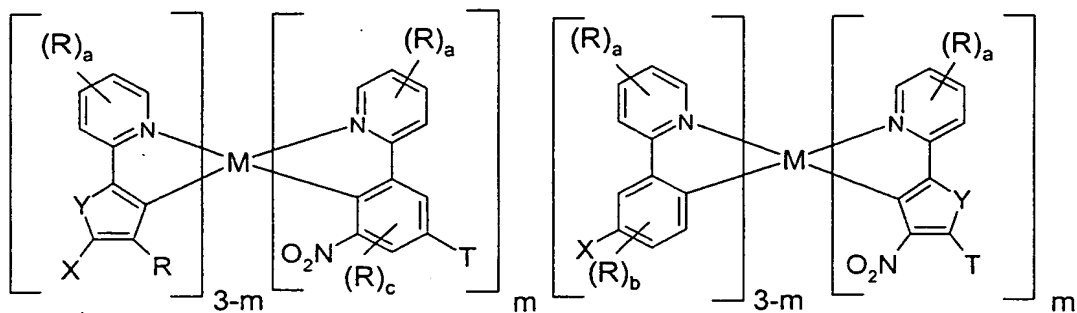
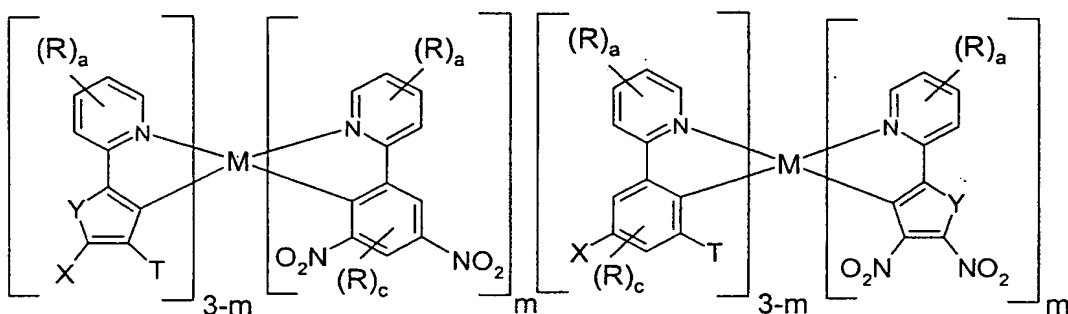
Compounds (8')

and/or of the formula (3a'), (4a'), (5a'), (6a'), (7a') and/or (8a')



Compounds (3a')

Compounds (4a')

**Compounds (5a')****Compounds (6a')****Compounds (7a')****Compounds (8a')**

where the symbols and indices are each defined as follows:

- M is Rh, Ir ;
- Y is O, S, Se, NR<sup>1</sup>;
- R is the same or different at each instance and is H, F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>1</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- T is the same or different at each instance and is F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>1</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or

polycyclic ring system;

$R^1$  is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;

$a$  is 0, 1, 2, 3 or 4;

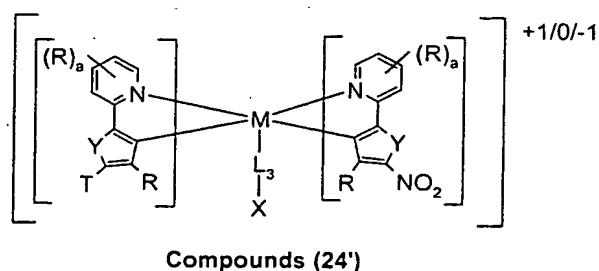
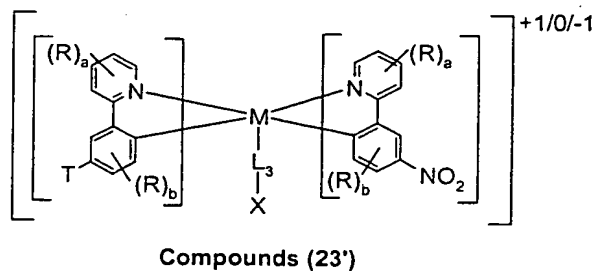
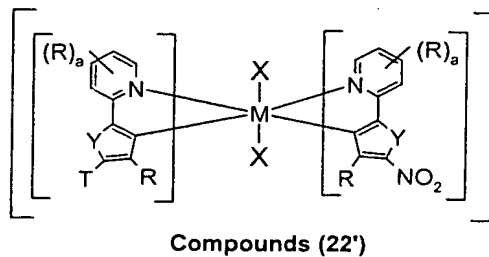
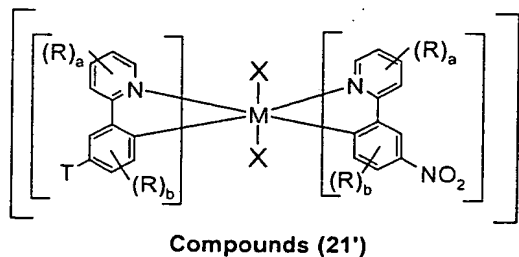
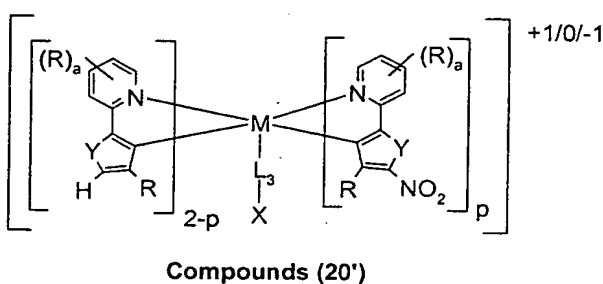
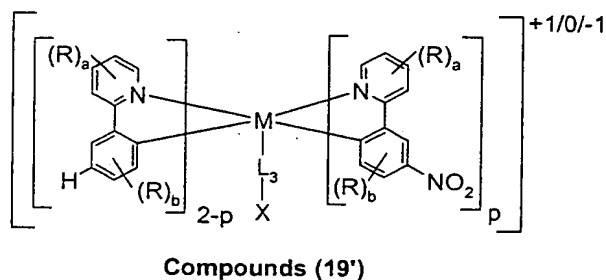
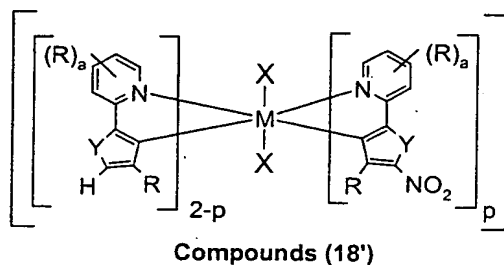
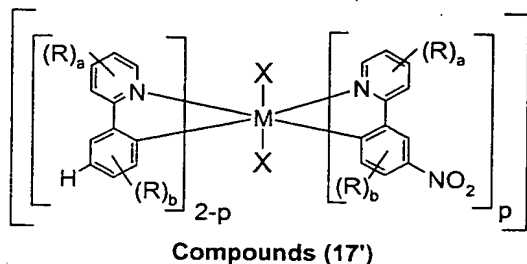
$b$  is 0, 1, 2 or 3;

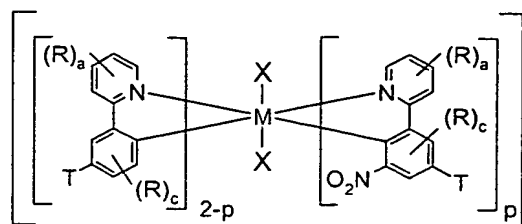
$m$  is 1 or 2;

$n$  is 1, 2 or 3.

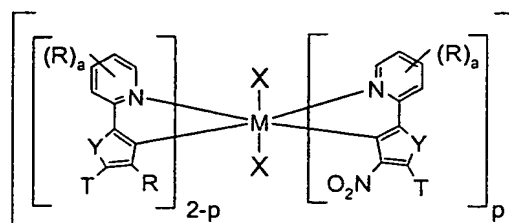
$X$  is a bond to the conjugated, semiconjugated or nonconjugated polymer.

11. A conjugated, semiconjugated or nonconjugated polymer containing one or more compounds of the formula (17'), (18'), (19'), (20'), (21'), (22'), (23'), (24'), (25'), (26'), (27'), (28'), (29'), (30'), (31') and/or (32')

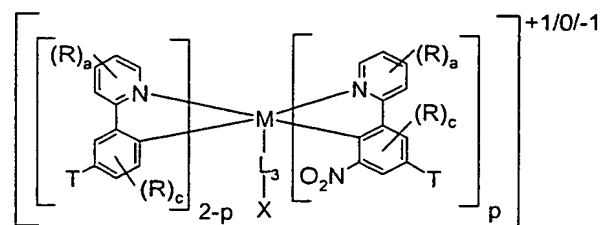




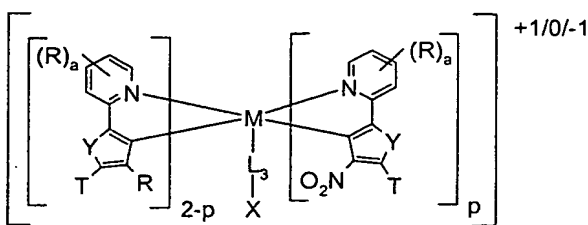
Compounds (25')



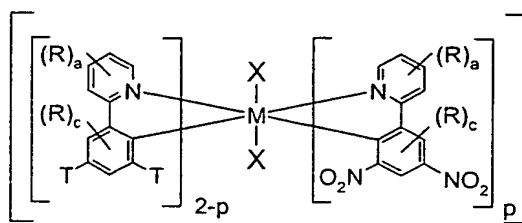
Compounds (26')



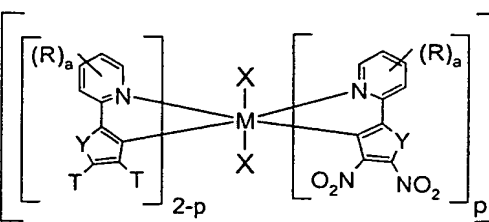
Compounds (27')



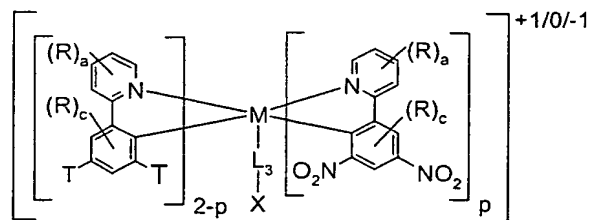
Compounds (28')



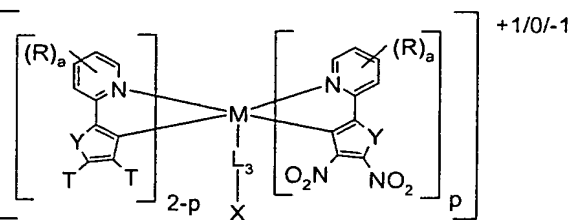
Compounds (29')



Compounds (30')



Compounds (31')



Compounds (32')

where the symbols and indices are each defined as follows:

- M is Rh, Ir ;
- Y is O, S, Se, NR<sup>1</sup>;
- R is the same or different at each instance and is H, F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -S-, -NR<sup>1</sup>- or -CONR<sup>2</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;



- T is the same or different at each instance and is F, Cl, Br, CN, a straight-chain or branched or cyclic alkyl or alkoxy group having from 1 to 20 carbon atoms, in which one or more nonadjacent CH<sub>2</sub> groups may be replaced by -O-, -SiR<sup>1</sup><sub>2</sub>-, -S-, -NR<sup>1</sup>- or -CONR<sup>2</sup>- and in which one or more hydrogen atoms may be replaced by F, or an aryl or heteroaryl group having from 4 to 14 carbon atoms which may be substituted by one or more nonaromatic R radicals, and a plurality of R substituents, either on the same ring or on the two different rings, may together in turn form one further aliphatic or aromatic, mono- or polycyclic ring system;
- R<sup>1</sup> is the same or different at each instance and is H or an aliphatic or aromatic hydrocarbon radical having from 1 to 20 carbon atoms;
- L<sub>1</sub> is an uncharged, monodentate ligand;
- L<sub>2</sub> is a monoanionic, monodentate ligand;
- L<sub>3</sub> is an uncharged or mono- or dianionic bidentate ligand;
- a is 0, 1, 2, 3 or 4;
- b is 0, 1, 2 or 3;
- m is 0, 1 or 2;
- p is 1 or 2;
- X is a bond to the conjugated, semiconjugated or nonconjugated polymer.

12. A polymer as claimed in claim 10 and/or 11, characterized in that the polymer contains repeat units selected from polyfluorenes, poly-spiro-bifluorenes, poly-para-phenylenes, polycarbazoles or polythiophenes.

13. A polymer as claimed in claim 10 to 12, characterized in that the polymer is a copolymer.

14. The polymer as claimed in one of claims 10 to 13, characterized in that the polymer is soluble in organic solvents.

15. An electronic component comprising at least one compound as claimed in one or more of claims 1 to 3.

16. An electronic component comprising at least one polymer as claimed in one or more of claims 10 to 14.

17. The electronic component as claimed in claim 15 or 16, characterized in that it is an organic light-emitting diode (OLED), organic integrated circuit (O-IC), organic field-effect transistor (OFET), organic thin-film transistor (OTFT), organic solar cell (O-SC) or else an organic laser diode (O-laser).